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Research Article

EFFECT OF *MANIPURA CHAKRA YOGA* ON *VATIKA GRAHNI* (IBS) PATIENTS

Alka Gupta[1]*, H.H.Awasthi[2], J.S.Tripathi[3]

*[1]Junior Resident, [2]Professior & Head, Department of Rachana Sharira, IMS, BHU, Varanasi, India.

[3]Professor, Department of Kaya Chikitsa, IMS, BHU, Varanasi, India.

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***Corresponding Author**
Dr Alka Gupta
Junior Resident
Department of Rachana Sharira
IMS, BHU, Varanasi-221005
21/1/c, Gangotri Nagar, Dandi Naini, Allahabad 211008, U.P. India.
Ph: +919450222578
Email: alkabhu1206@gmail.com

ABSTRACT

Objective: *Yoga* and *Tantra* are found moving hand in hand with *Ayurveda*. *Yoga* procedure performed on abdominal vicinity effects through a basic anatomical entity *Manipura Chakra*. *Manipura Chakra* can be correlated with coeliac plexus and surrounding small plexuses. This concludes that all the abdominal organs are governed and regulated by *Manipura chakra*. The *Yoga* technique like *Uddiyana Bandha, Bhastrika Pranayama, Pawanmuktasana* etc affect directly on *Manipura Chakra* thereby affecting abdominal organ's physiology and pathology like IBS and produce physical effect as increasing the *Agni* as well as *psychological* effects. The present study dignifies the hypothesis by clinical study.

Method: For clinical study total 50 cases were registered were randomly selected diagnosed cases of *Vatika Grahani* (irritable bowel syndrome) group again divided into two subgroups 1) control and 2) intervention group consisting 25 in each. The intervention group are advised to do practice of *Pavanamuktasana, Bhastrika Pranayama* and *Uddiyana Bandha* for two months. The observations were analyzed using SPSS software 16.0 and results obtained.

Result: In this study *Vatika Grahani* (IBS) - intervention sub group shows all the symptoms both pathological and psychological shown improvement which is statistically significant ($p<0.001$).

Conclusion: This study shows the *Yoga* affecting the *Manipura Chakra on Vatika Grahani* (IBS) patients on health-related outcome measures. Future clinical trials are needed to examine the distinctions among *Yoga* on different *Chakras,* particularly how these modalities may differ in their effects. Additional studies using rigorous methodologies are needed to examine the health benefits of the various types of *Yoga on Manipura Chakra.*

INTRODUCTION

Yoga is the science which dates back antiquity. Many forms of *Yoga* and its anatomical and physiological basics came from *Tantra* and *Upnishdas*.

Tantra means regulation or *Niyaman*. This means a system which is a body regulatory system should be labelled as *Tantra Sharira*. The term indicates that the *Tantric Sharira* term has been used as most important regulatory system of body i.e. nervous system of body.[3] *Tantra Shastra*, the scripture (*Shastra*) of *Kaliyuga,* together with its accompanying oral tradition is the voluminous source of *Hindu* tradition, *Hatha Yoga* and the various form of spiritual training. Likewise *Veda Tantras* echo the knowledge of eternity.[1]

Tantrics have postulated the theory of existence of *Shadcakras* are the nervine units outside spinal exist, Indian *Yogis* mediators have proved that meditation always helps in controlling the autonomous nervous system.[2] Afferent, efferent and interneuncial tracts of nervous system have also been studied under different heading of *Sangyavaha Srotas- Jyanendriya, Indriya Panca Pancaka, Agyavaha Srotas- Karmendriya* and *Manovaha Srotas- Ubhaya Indriya Manas.* As far as the autonomic nervous system concerned it has been very well established by Tantric neurologist.[4]

The *Tantras* have defined nervous system under headings of *Sad chakra* and *Nadis*. *Chakras* are literately meant as wheels are nerve plexuses with surrounding small plexuses. These plexuses control the physical and mental activity of different autonomic ganglia. The functional significance of these plexuses

also corresponds, to some extent, with modern concepts. Indians, who, in turn, have attributed power to various Gods in the Hindu pantheon, who in turn, have been associated with various centers (*Cakras*) within the nervous system. The centers have symbolic names, and from sacral region to cranium ward, they are.

1. The *Muladhara Cakra*, corresponding to the sacral plexus, which is associated with the autonomic functions of the pelvic organs including the genitals,
2. The *Svadhisthana Cakra*, corresponds to the hypogastric plexus,
3. The *Manipura Cakra*, corresponds to the coeliac plexus,
4. The *Anahata Cakra,* corresponds to the cardiac and pulmonary plexuses,
5. The *Vishudha Cakra*, corresponds to the various nerves plexuses in the neck,
6. The *Agya Cakra* which corresponds to the hypothalamo-hypophyseal axis in its action is situated between the eyebrows,
7. The highest seventh, *Sahastrara Cakra* (*Padma Cakra*) which is like thousand-petalled lotus is situated inside the cranial cavity, and is concerned with the special senses of hearing, touch, sight, smell, taste and sleep or absence of all these. It is also concerned with all the higher functions of emotions and memory, etc.[5]

Manipura Chakra lies in the vicinity of umbilicus where the coeliac plexus is the largest major autonomic plexus. It is a dense network uniting two large coeliac ganglia and surrounds the coeliac artery and the root of the superior mesenteric artery. The plexus and ganglia are joined by the greater and lesser splanchnic nerves and branches from the vagus and phrenic nerves. *Dala* of *Manipura* are numerous secondary plexuses along adjacent arteries. The coeliac plexus is connected to, or gives rise to, the phrenic, splenic, hepatic, superior mesenteric, suprarenal, renal and gonadal plexuses

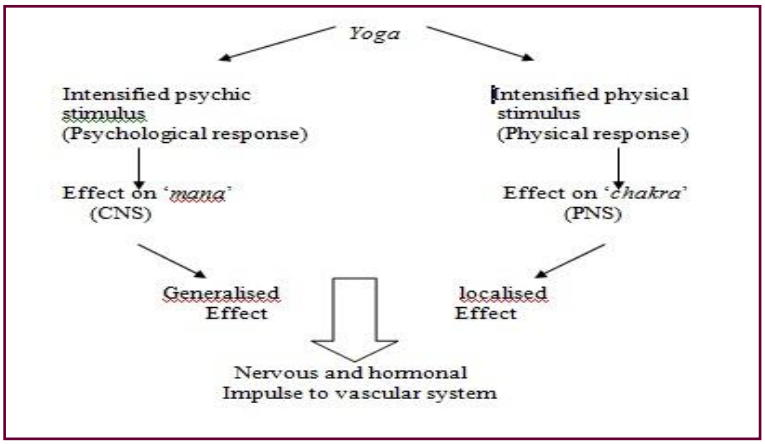
According to *Ayurveda Manipura Cakra / Nabhi Cakra* is the Seat of *Samana Vayu.* The type of *Vata* which rotates all around the *Nabhi* or umbilicus, *Grahani* is named as *Samana Vata* as '*Samanatha*' denotes all around or pervading, The *Samana Vata* is located close to the *Antaragni* and it moves in the entire *Koshtha*[6].

It helps in regularizing the proper distribution of food, drinks, inhaled material, blood and *Tridoshas* in the body. Movement or motility of gastro-intestinal tract occurs owing to contraction and relaxation of the intestinal muscle fiber. These muscles are smooth muscles and their movements are controlled by autonomic nervous system which includes sympathetic and parasympathetic nerve fibers. Few actions of Auerback's & Meissner's plexues of autonomous nervous system can be considered as the functions of *Samana Vayu*, which is present in the *Nadis* of *Dalas* of *Manipura Cakra.*[7]

Effect of *Yoga* on *Manipura Cakra* Entity

Each *Yoga* entity have some generalised effect and some localized effects. Generalised effects take place through the neuropsychological pathway, which in *Ayurveda* termed as *Mana*, while localised effects occur through direct neuro-organic physiological pathway of chakras. The effect of *Yoga* on this psycho-physiological system through the *Cakra* can be schematically presented as below.

Figure 1: Showing the mechanism of *Yoga* through *Cakra*



Material and Method

Study design and setting

The present study was a case control trial for *Vatika Grahni* (IBS) patients with psychological problems. Subjects were assigned to a study specific two-month protocol of *Yoga* session. The study was approved by the ethical committee of IMS, BHU, Varanasi UP, India.

Study participants

A total of 83 *Vatika Grahni* (IBS) patients, age matched between 20-60 years were recruited for the study. Motivated subjects were enrolled (defined by Rome II criteria). The intervention group consisted of 25 *Yoga* Practicing subjects with a control group of 25 subjects. Subjects having cardiac diseases, asthma and any other metabolic diseases, pregnant females, patients with back ache and age group <20 and >60

years were excluded. Interested individuals were initially screened for eligibility under supervision of a senior consultant. Informed consent was obtained on the first visit and anthropometrical measurements were taken.

Data collection

The socio-demographic data, details of personal and medical history were taken. Assessments of all the subjects were carried out Rome II criteria were administrated to both the groups at the beginning of the study to assess the baseline levels of anxiety and depression and again after six months.

***Yoga* practice**

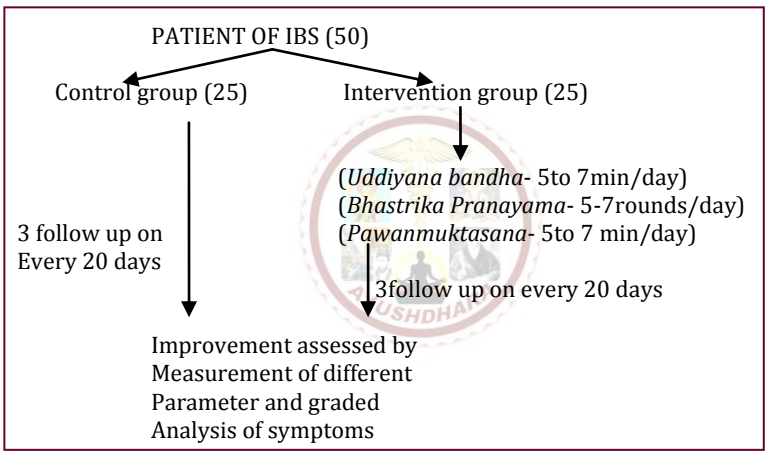
We used the study specific *Yoga* Practices in the present study. To evaluate clinical efficacy of *Yoga* practices affecting *Manipura Chakra,* both subjective and objective parameters are taken into an account. The *Yoga* group practiced a set of *Yoga* techniques daily, in the form of *Asana* (postures) and deep relaxation technique, *Pranayama* (breathing techniques) and *Bandha*. *Yoga* practices included: Stretching techniques; 5 rounds of *Surya namaskar* for body warming, *Pawanmuktasana, Bhastrika Pranayama* and *Uddiyana bandha.*

At each follow up the patients were assessed for clinical symptoms of *Vatika Grahni* (IBS). Complete blood picture, LFT, serum cholesterol, HDL, LDL were taken before and after treatment, Lipid profile was taken as criteria to exclude any effect on lipid metabolism.

Data analysis

The observations were analyzed using SPSS software 16.0 and results obtained. The data were summarized as Mean ± SD. The continuous demographic characteristics of two groups were compared by independent Student's *t* test while discrete data (gender) was compared by Chi-square (χ^2) test. The pre and post outcome measures of two groups were compared by independent t test and paired t test.

Figure 2: Showing the flow diagram of material and method study



RESULTS

The demographic [age, gender, religion, socioeconomic status and *Deha prikritti* (humoral constitution)] of two groups at the time of admission (baseline) and after third follow up have been shown in Table no 1, Table no 2, Table no 3. In both groups, the age of participants ranged from 15 to 60 years with almost equal distribution in all age group respectively. The number of male participants was higher than females of control and *Yoga* intervention groups. As local population is Hindu majority in both groups shown higher Hindu religion patients. In both groups, the participants were mostly of middle socioeconomic status. The demographic as well as socioeconomic status of two groups at admission was found similar. In other words, the participants of two groups were demographically and socio-economically matched and therefore, the outcome measures of two treatments (single medicine and medicine with *Yoga* intervention) were comparable. *Deha prakritti* (humoral constitution) of both groups shown that *Vataj-pittaj prakritti* have greater frequency of having *Vatika Grahani* (IBS).

Table 1: Distribution of 50 patients of 2 groups *Vatika Grahani* (IBS) (Gr-B1-control, B2-intervention) according to Age

Age Group wise No. and Percentage		
Age	**Group**	
	B-1	**B-2**
15-25- % within Group	4%	24%
26-35- % within Group	32%	24%
36-45- % within Group	44%	24%
46-60- % within Group	20%	28%
Total no. & % within Group	25 (100%)	25 (100%)

Table 2: Distribution of 50 patients of 2 groups *Vatika Grahani* (IBS) (Gr-B1-control, B2-intervention) according to gender and religion

Gender Group wise no. and Percentage			Religion Group wise no. and Percentage		
Gender	**Group**		**Religion**	**Group**	
	B-1	**B-2**		**B-1**	**B-2**
Male- % within group	68.0%	80.0%	Hindu- % within Group	92.0%	100.0%
Female- % within group	32.0%	20.0%	Muslim- % within Group	8.0%	0%
Total no. & % within Group	25 (100%)	25 (100%)	Total no. & % within Group	25 (100%)	25 (100%)

Table 3: Distribution of 50 patients of 2 groups *Vatika Grahani* (IBS) (Gr-B1-control, B2-intervention) according to socioeconomic status and *Deha prakritti*

Socioeconomic status Group wise no. and Percentage			*Deha Prakriti* Group wise No. and Percentage		
Socioeconomic status	**Group**		***Deha Prakriti***	**Group**	
	B-1	**B-2**		**B-1**	**B-2**
Lower Class- % within Group	40.0%	48.0%	*Vataja-Pittaja* % within Group	48.0%	56.0%
Middle Class- % within Group	56.0%	52.0%	*Pittaja-kaphaja* % within Group	24.0%	12.0%
Upper Class- % within Group	4.0%	0%	*Vataja-Kaphaja* % within Group	28.0%	32.0%
Total no. % within Group	25 (100%)	25 (100%)	Total no. % within Group	25 (100%)	25 (100%)

In this study symptom of *Vatika Grahani* (IBS) - intervention sub group *Jirne Jiyate-Adhmanam* (Excessive gas formation after meal digestion) improved completely in 68% cases, *Mandagni* and *Shuktapaka* (decreased appetite and indigestion) in 68% cases, *Vikritmala Privritti* (Altered bowel habit) in 84% cases, *Kanthasya shosha* (dryness in mouth and throat) in 100% cases and *Vatagulma-pliha-hridroga shanki* (Misperception of phantom tumor or splenomegaly or heart disease) in 88% cases, while in *Vatika Grahani* (IBS)-control (B-2) completely improved patients was 0%, 4%, 4%, 8% and 8%in symptoms respectively. This signifies better improvement in every symptom in *Vatika Grahani* (IBS) - intervention sub group.

Grading was done for all symptoms in four levels 0.00- absent, 1.00- mild/occasional/1-2times per week, 2.00- moderate/frequent/5-7 times per week, 3.00-severe/always present.

The observation clearly depicts that the severity of the symptom *Jirne jiyate-adhmanam* (Excessive gas formation after meal digestion) in *Vatika Grahani* (IBS-intervention), decrease with each follow up. The initial number of cases with absence of Excessive gas formation after meal digestion was nil which became 68% after 3rd follow up. While in *Vatika Grahani* (IBS)-control sub group numbers of cases with absence of symptom in follow-up remain nil. Although there is some improvement in symptom in control group too but inter group comparison shows statistically significant ($p<0.001$) difference between groups in third follow up which was insignificant ($p > 0.05$) before treatment. This signifies better results in intervention group.

Table 4: Effect on *Jirne jiyate-adhmanam* (Excessive gas formation after meal digestion) in *Vatika Grahani* (IBS-control B-1 and IBS -intervention B-2 sub groups) group before treatment and after 3rd follow up

		No and % of cases			**Within the group comparison**
			BT	**FU3**	
Jirne jiyate-adhmanam	Group-B-1 *Vatika Grahani* (IBS)-control	0 (absent)	0 (0%)	0 (0%)	X^2 - 47.700 p - 0.000 p<0.001
		1 (mild)	1 (4%)	10 (40%)	
		2 (moderate)	3 (12%)	12 (48%)	
		3 (severe)	21 (84%)	3 (12%)	
	Group-B-2 *Vatika Grahani* (IBS) -intervention	0 (absent)	0 (0%)	17 (68%)	X^2 - 66.452 p -0.000 p<0.001
		1 (mild)	0 (0%)	6 (24%)	
		2 (moderate)	6 (24%)	2 (8%)	
		3 (severe)	19 (76%)	0 (0%)	
Between the group comparison			X^2-2.100 p-0.350 p > 0.05	X^2-28.143 p -0.000 p<0.001	

The observation clearly depicts that the severity of the symptom *Mandagni* and *Shuktapaka* (decreased appetite and indigestion) in *Vatika Grahani* (IBS-intervention), decrease with each follow-up. The initial number of cases with absence of decreased appetite and indigestion was 4% which become 68% after 3rd follow up with p is statistically significant ($p<0.001$). While in *Vatika Grahani* (IBS)-control sub group number of cases with absence of symptom in follow up becomes 4% with some improvement in symptom. In the inter group comparison difference

between B-1 and B-2 was insignificant (p > 0.05) which become statistically significant in third follow-up (p<0.001). This signifies that intervention group had demonstrated better results.

Table 5: Effect on *Mandagni* and *Shuktapaka* (decreased appetite and indigestion) in *Vatika Grahani* (IBS-control B-1 and IBS -intervention B-2 sub groups) group before treatment and after 3rd follow up

		No and % of cases			Within the group comparison
			BT	FU3	
Mandagni* and *Shuktapaka	Group-B-1 *Vatika Grahani* (IBS)-control	0 (absent)	0 (0%)	1 (4%)	X^2 - 29.615 p - 0.000 p<0.001
		1 (mild)	0 (0%)	7 (28%)	
		2 (moderate)	3 (12%)	8 (32%)	
		3 (severe)	22 (88%)	9 (36%)	
	Group-B-2 *Vatika Grahani* (IBS) -intervention	0 (absent)	1 (4%)	17 (68%)	X^2 - 64.024 p - 0.000 p<0.001
		1 (mild)	0 (0%)	6 (24%)	
		2 (moderate)	6 (24%)	2 (8%)	
		3 (severe)	18 (72%)	0 (0%)	
Between the group comparison			$X^2$2.400 p-0.301 p > 0.05	$X^2$26.899 p-0.000 p<0.001	

The observation signifies that the severity of the symptom *Vikritmala Privriatti* (Altered bowel habit) in *Vatika Grahani* (IBS-intervention), decrease with each follow up. The initial number of cases with absence of Altered bowel habit after meal digestion was 4% which become 84% after 3rd follow up, with p is statistically significant (p<0.001). While in *Vatika Grahani* (IBS)-control sub group number of cases with absence of symptom in follow up becomes 4% with some improvement in symptom. In the intergroup comparison difference between B-1 and B-2 in 3rd follow up is statistically significant (p<0.001) X^2=40.167. It depicts better results in *Vatika Grahani* (IBS-intervention) group.

Table 6: Effect on *Vikritmala Privriatti* (Altered bowel habit) in *Vatika Grahani* (IBS-control B-1 and IBS -intervention B-2 sub groups) group before treatment and after 3rd follow up

		No and % of cases			Within the group comparison
			BT	FU3	
Vikrtmala Privratti	Group-B-1 *Vatika Grahani* (IBS)-control	0 (absent)	0 (0%)	1 (4%)	X^2 – 28.786 p – 0.000 p<0.001
		1 (mild)	0 (0%)	6 (24%)	
		2 (moderate)	6 (24%)	12 (48%)	
		3 (severe)	19 (76%)	6 (24%)	
	Group-B-2 *Vatika Grahani* (IBS)-intervention	0 (absent)	0 (0%)	21 (84%)	X^2 - 67.360 p – 0.000 p<0.001
		1 (mild)	3 (12%)	3 (12%)	
		2 (moderate)	1 (4%)	1 (4%)	
		3 (severe)	21 (84%)	0 (0%)	
Between the group comparison			$X^2$6.671 p-0.036 p <0.05	$X^2$40.167 p-0.000 p<0.001	

The observation reveals that the severity of the *Vatagulma pliha hridroga shanki* (Misperception of phantom tumor or splenomegaly or heart disease) in *Vatika Grahani* (IBS-intervention), decrease with each follow-up. The initial number of cases with absence of symptom was nil which become 88% after 3rd follow up. While in *Vatika Grahani* (IBS)-control sub group number of cases with absence of symptom in follow up becomes 8% with some improvement in symptom (p<0.05). The intergroup comparison test shows statistically insignificant before treatment (p>0.05) which become significant after 3rd follow-up (p<0.001). This result show better results in *Vatika Grahani* (IBS)-intervention sub group.

Table 7: Effect on *Vatagulma pliha hridroga shanki* (Misperception of phantom tumor or splenomegaly or heart disease) in *Vatika Grahani* (IBS-control B-1 and IBS -intervention B-2 sub groups) group before treatment and after 3rd follow up

		No and % of cases			Within the group comparison
			BT	FU3	
Vatagulma pliha hridroga shanki	Group-B-1 *Vatika Grahani* (IBS)-control	0 (absent)	0 (0%)	2 (8%)	X^2 - 9.667 p - 0.022 p < 0.05
		1 (mild)	2 (8%)	4 (16%)	
		2 (moderate)	8 (32%)	8 (32%)	
		3 (severe)	15 (60%)	11 (44%)	
	Group-B-2 *Vatika Grahani* (IBS)-	0 (absent)	0 (0%)	22 (88%)	X^2 - 65.958
		1 (mild)	2 (8%)	3 (12%)	

	intervention	2 (moderate)	9 (36%)	0 (0%)	p - 0.000
		3 (severe)	14 (56%)	0 (0%)	p<0.001
Between the group comparison			X^2-0.093 p-0.954 p > 0.05	X^2- 35.810 p-0.000 p<0.001	

DISCUSSION

Here in present study we have included 3 *Yoga* interventions (*Pavanamuktasana, Bhastrika Pranayama and Uddiyana Bandha*) in the search of clinical usefulness of *Manipura Cakra.* These three were selected because of their mechanism of action through abdominal neurovascular entity i.e., comparable to *Manipura Cakra.* Neuro-organic physiological pathway in abdomen is governed and regulated by *Manipura Chakra*

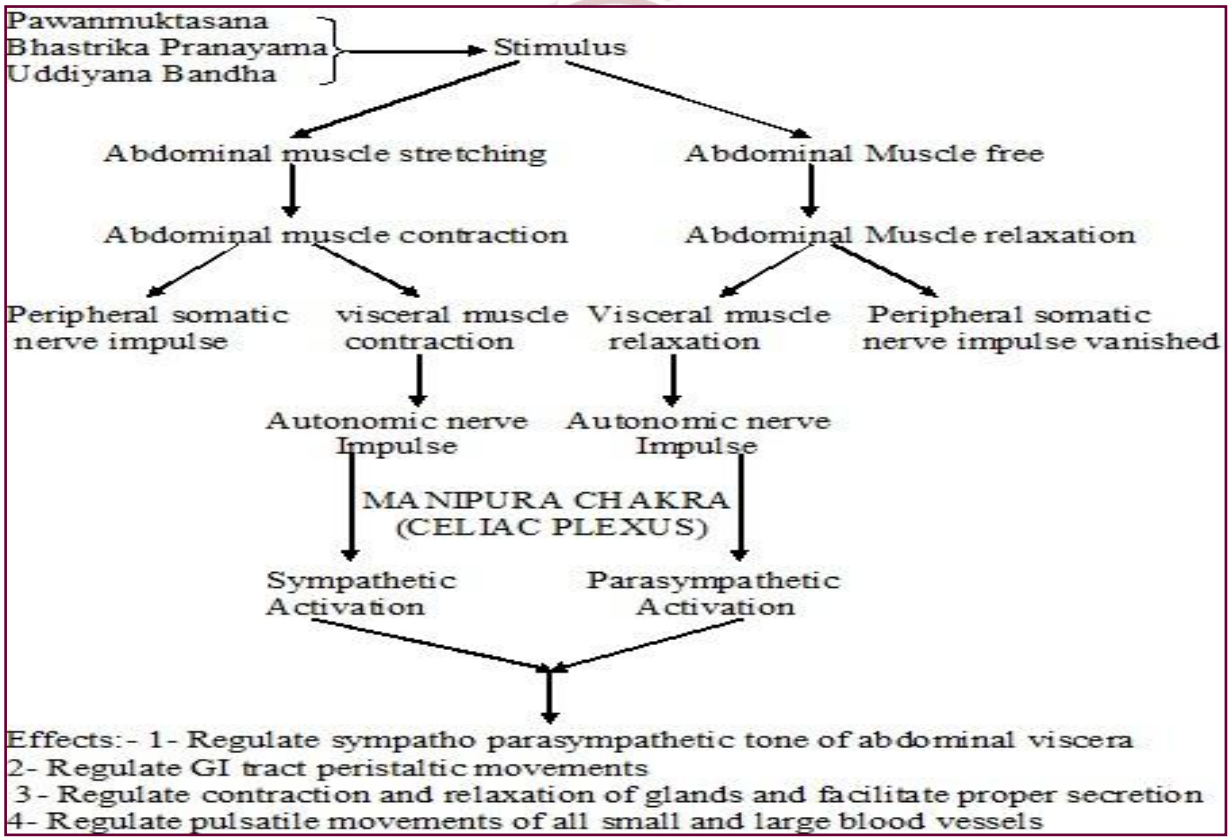
The present study evaluates the impact of these yogic practices on psychological parameter as well as pathological parameters resulting from poor lifestyle, and bad dietary habits which cause IBS. Dietary control and lifestyle modification are necessary for IBS cure; however, the psychological components due to IBS remain untreated.

This study was one of the first to give support to *Yoga* as an effective tool *with no diet restriction* to improve symptoms psychological parameter as well as pathological symptoms in IBS patients. The results showed differences in outcomes for the medicine only and medicine with *Manipura chakra Yoga* intervention groups over a period of time.

Hence, this study established the improvement in psychological parameters with the potential to generate positive effect and general feeling of well being in *Vatika grahni* (IBS) patients.

Mechanism of action of these *Yoga* practices remain unclear; still the author have tried to give a satisfactory answer by mechanism through Manipura chakra. Anatomically these *Cakras* are wheels of neurovascular circulatory channels attached to the connective tissue of human body distributed to various organs and structure of the body. These wheels of nerves are called plexuses which are an intricate inner communication between the funiculi of adjacent nerve.

Figure 3: Showing the mechanism of *Pavanamuktasana, Bhastrika Pranayama* and *Uddiyana Bandha* through *Manipura Chakra*



In support of present study many previous works are mentioned there.

Similar work has also shown that those with psychological symptom in IBS could benefit from yogic intervention and related practice. The study indicates a beneficial effect of *Yogic* intervention over conventional treatment in diarrhea-predominant IBS.[9] Earlier studies also reported similar findings.[8-10] During depression, there is a decrease in neurotransmitters such as serotonin and norepinephrine. Besides, an increased level of cortisol has a role in causing depression by regulating the function of serotonin and

norepinephrine.[11] *Yoga* helps in decreasing the cortisol levels leading to a counter-regulatory effect to reduce the depressive symptoms.[12]

There was decreased psychological symptom in the *Yoga* group. Previous studies have also shown that practicing *Yoga* for other conditions (cancer survivors, self-reported emotional distress) results in beneficial effects for depression and mood, as well as anxiety and a state of physical wellbeing is established. Further, the subjects who practiced *Yoga* frequently endorsed qualitative benefits after *Yoga* sessions[13]

These all studies evaluated that *Yoga* procedure especially in umbilical vicinity more helpful in relieving the symptoms of IBS with autonomic system modulation.

CONCLUSION

This study shows the *Yoga* effecting the *Manipura chakra on Vatika Grahani* (IBS) patients on health-related outcome measures. Future clinical trials are needed to examine the distinctions among *Yoga* on different *Chakras,* particularly how these modalities may differ in their effects. Additional studies using rigorous methodologies are needed to examine the health benefits of the various types of *Yoga on Manipura chakras. Uddiyana bandha, Bhastrika.*

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